APPLICATON NOTE: 88

Monitoring temperature and/or humidity in a warehouse

Monitoring warehouse conditions does not have to be complicated.

The TV2 Master Thermometer is an ideal instrument for monitoring and documenting temperature and humidity. It can be used with up to four wireless sensors.

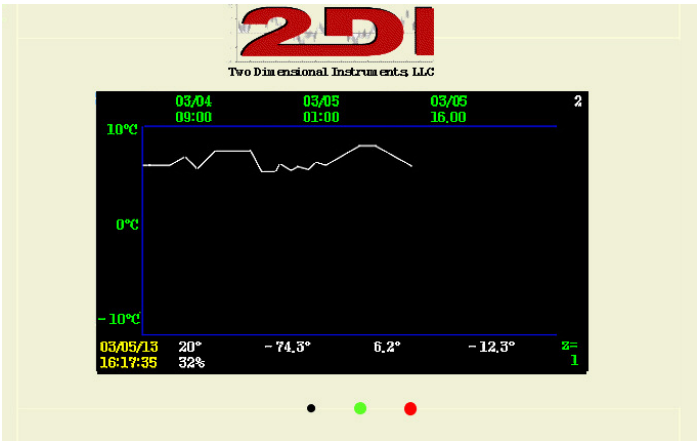
It is accurate and automatic, providing continuous monitoring and indicating trends so that corrective action can be taken. In addition to the display showing the current temperatures, it can also show a chart on the large LCD display.

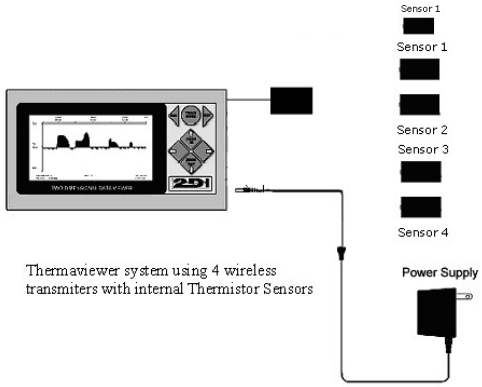
It has a trace mode and a zoom function so that individual measurements as well as trends can be examined. It requires no special skills to read and interpret and comes equipped with an external N/O relay to trigger an alarm or auto dialer if out-of-spec conditions occur.

Using a TV2 is simple, with minimum set-up required. It needs no programming, maintenance, paper or pens to monitor and document temperature. Simply plug the ThermaViewer into a wall socket or a computer and begin collecting temperature history immediately.

Installation of the ThermaViewer is a simple 6-step process:

1. **Position the sensor modules in the areas to be monitored.**
2. **Place a 9 vdc battery in the sensors**
3. **Plug the TV2 power adaptor into a wall socket.**
4. **Attach the auto dialer (if purchased).**
5. **Set the time and monitoring frequency (see below for suggested settings).**
6. **Set the alarm in needed.**





Thermaviewer system using 4 wireless transmiters with internal Thermistor Sensors

APPLICATON NOTE: 88
Installation and setup

Mount the TV2 display unit in the room or office area near the area to be monitored. Position each sensor in a separate area with a clear line-of-sight to the display unit and attach the auto dialer (if purchased) to the relay connection.

The following are suggested settings. You should use the settings required by your standards.

Suggested settings:

Room 1 Sensor	
Sample Data once every 00:10:00 HH:MM:SS	
Type of Averaging Med	
Maximum temperature line	85°F
Minimum temperature line	60°F
Maximum RH temperature line	100%
Minimum RH temperature line	0%

Room 2 Sensor	
Sample Data once every 00:10:00 HH:MM:SS	
Type of Averaging Med	
Maximum temperature line	85°F
Minimum temperature line	60°F
Maximum RH temperature line	100%
Minimum RH temperature line	0%

Alarm Menu

Sensor 1 Temperature Relay: Enabled[1]
Trigger Relay for 10:00 MM:SS
If temp is > 80°F for more than 00:20:00 HH:MM:SS
If temp is < 65°F for more than 00:15:00 HH:MM:SS
If RH is >60% for more than 00:10:00 HH:MM:SS
If RH is <30% for more than 00:10:00 HH:MM:SS

Sensor 1 Temperature Relay: Enabled[1]
Trigger Relay for 10:00 MM:SS
If temp is > 80°F for more than 00:20:00 HH:MM:SS
If temp is < 65°F for more than 00:15:00 HH:MM:SS
If RH is >60% for more than 00:10:00 HH:MM:SS
If RH is <30% for more than 00:10:00 HH:MM:SS

Setting the sensors to sample data once every ten-minutes with medium averaging will cause the **TV2** to average the temperature over the ten-minute period. This causes the chart to more accurately reflect the temperature and humidity conditions in the room. Momentary dips and rises of the air temperature or humidity, which can occur when a door is opened or the air handler starts up are not usually enough to affect the internal environment and can safely be averaged over the ten-minute period between readings.

There is a three-point temperature characterization table built into each TV2 sensor that can be used to adjust the temperature or RH readings if desired. (See the calibration information included with the CD for more information).

Downloading data:

The ThermaViewer will hold over 9 months of temperature and humidity data for each sensor with the settings listed above (10 minute store interval). If you want to store more data you can lengthen the store data interval. An interval of 60 minutes will allow five years of data to be stored for each sensor.

A regular schedule for downloading data from the TV2 can be established so that a back up copy of the data is maintained in your computer. You can also print out a copy of the chart with the same free software that downloads data to your computer (TView).

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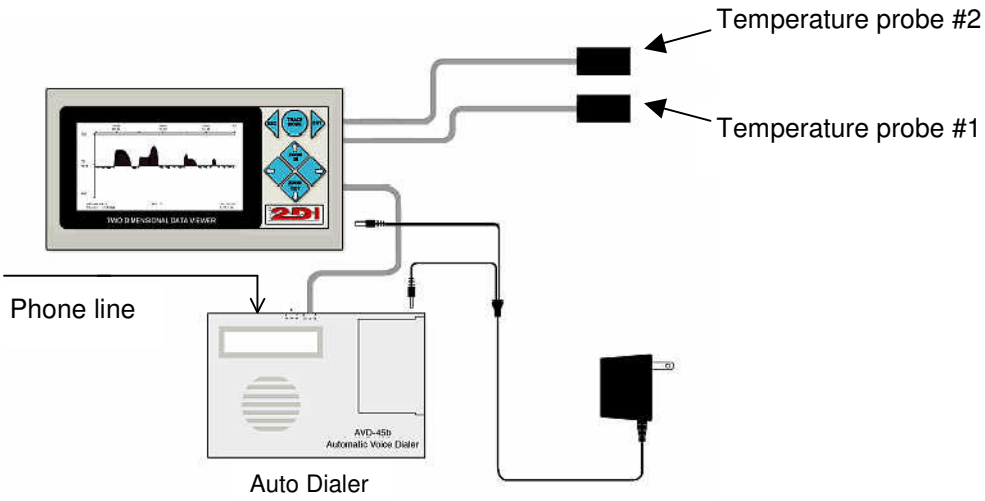
Optional Auto-Dialer

The ThermaViewer comes equipped with a N/O dry-contact relay that can be used to trigger an alarm or auto dialer. Each channel of each sensor has its own high and low trigger point. The relay will be closed when temperature rises above 80°F for more than 20 minutes or falls below 65°F for more than 15 minutes, *if the suggested settings above are used*. Once the relay has been triggered, the alert clock is reset.

If you need faster response time you can decrease the time on the alarm menu. You could have the ThermaViewer trigger the alarm if the temperature rises or falls below your safe values for 5 seconds, or for more than 24 hours.

If an auto dialer is ordered a separate power supply is provided.

The auto dialer will call four phone numbers (i.e. phone, pager, answering machine or service) and leave a 16 second message when triggered by the ThermaViewer. It will keep calling the four numbers until someone picks up and the message is delivered.



The auto dialer can be set with:

- 60 second exit delay
- 10 second entry delay
- N.O. (meaning that the relay is normally open).
- MOM (meaning that it only takes a momentary activation from the relay to trigger the dialer).

A relay test function on the System Parameter of the ThermaViewer causes the relay to be immediately triggered. Entering 'yes' in this field causes the ThermaViewer enter an alarm condition that causes the auto dialer to immediately call the four phone numbers stored in its memory. Allow 90 seconds to elapse between the time you exit the programming mode of the auto dialer and you activate the relay.

Technical support for Auto Dialer only (858) 413-0149

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